
Reflexive Governance of Import Substitution Mechanism in Clusters

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Abstract:

The article considers reflexive governance of import substitution mechanism in clusters. Specifics of import substitution in clusters have been revealed.

It is assumed that effective use of reflexive governance will allow one to optimize the interaction of economic entities in a region on the basis of the allocating a priority economic cluster which will lead to an increase in the social and economic efficiency of the regions of Russia and will help to bridge the gap between the development of regions.

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1. Introduction

The existing methods of governing the formation of cluster structures in the regions of Russia have their own characteristics in the context of turbulence and external interferences. At present, the problems of creating an innovative tool for governing cluster structures in the regions of the Russian Federation are becoming topical.

The interaction of economic agents takes place based on reflection, that is, interaction is not only influenced by external factors but also taking into account the knowledge, experience, and perceptions of decision-makers, while the governance does not sufficiently use reflexive approach, which makes it difficult to manage the economic development of a cluster. The immediacy of the problem is determined by the need to create management tools that would provide effective solutions for the tasks of forming coordinating systems for cluster structure development. In modern science, the issue of identifying priority system-forming elements that form the core of the development and interaction of economic entities in a region has not been adequately addressed.

The proposed approach to reflexive governance of clusters in a region is an instrument for their development based on creation of a system-forming element in the form of import-substitution mechanism interaction of economic entities of the region is premised on. The results of this approach will allow one to reestablish cooperation ties between economic entities and smooth the gap between the development of the regions, which will lead to an increase in the social and economic performance efficiency of the regions of the Russian Federation.

2. Literature review

Reflexive governance considered in scholarly works of Voevodin (2004), Leonenko (1995), Von Senger (2000), Novikov and Chkhartishvili (2003), Saigushev, (2002) and other scientists. The mechanism of import substitution ipresented in the works of Amunts *et al.* (2015), Berezinskaya and Vedev (2015), Brich (2003), Medvedev (2016), Plotnikov and Vertakova (2014) and Salnikov *et al.* (2015).

The trend of territorial-sectoral cluster development has been fully covered in the works of Altukhov (2010), Artamonova *et al.* (2014), Bezrukova *et al.* (2013), Brykin and Kolegov (2012), Vinslav *et al.* (1998), Gerasimov and Levchenko (2012), Dmitriyeva (2011), Kozenkova (2008), Kolchanova and Kolchanova (2016), Faizova *et al.* (2015), Frank *et al.* (2016), Liapis *et al.* (2013), Sambracos and Ramfou (2014), Tyaglov *et al.* (2017), Molodykh (2009), Morgunov (2014), Porter (1993), Prokofieva and Sergeev (2010), Protsenko and Kulagovskaya (2013), Streltsov (2013), Stryabkova (2012) and Yakutin (2011).

3. Methodology

The potential for using reflexive governance of the import substitution mechanism in clusters has predetermined the comprehensiveness of using methods for analyzing the problem under investigation based on fundamental works on reflexive governance, import substitution, and cluster development. A systematic approach to generalization and analysis of the theoretical foundations of import substitution reflexive governance serves as a methodological base for the research.

The study has used methods of statistical data analysis, reflexive analysis. Methods of cognition (deduction and induction, synthesis and analysis) have been employed, as well as methods of systematization, comparative analysis, generalization, formal modeling of the processes under study, economic analysis, as well as dialectical and historical-logical methods. Within the framework of cluster concept, it becomes possible to consider the mechanism of import substitution as one of the principles of economic system transformation, which does not only allow one to study their individual components, but also to integrate them. The hypothesis of the research is that reflexive governance of the import substitution mechanism is inseparable from implementation of a cluster strategy; therefore, the applied approach presupposes application of various governance models in governance.

4. Results

Within the framework of synergetic paradigm, reflexive governance becomes system forming for clusters. Reflexive governance of the import substitution mechanism is a measure of effective performance formation under turbulence conditions, which allows for coordination of the flow optimization process in clusters and ensures their adaptation to dynamically changing economic environment. The aim of the research is to find forms of controlling the mechanism of import substitution: the concepts of reflexive governance and import substitution are revealed, the expediency of transition from the traditional approach to the reflexive one in controlling the mechanism of import substitution taking into account the developmental characteristics of clusters is substantiated.

A systematic approach to the formation of clusters allows one to consider them as a system where all participants create cooperative ties based on the mechanism of import substitution. Regional industrial clusters have been analyzed, and their specifics have been revealed. It has been proposed to use the mechanism of import substitution as a principle of transforming economic systems for integration within the framework of the cluster concept of regional industrial clusters for optimizing the financial flow of enterprises. The research carried out on the prospects of the priority clusters in the Omsk region has made it possible to identify factors that hamper implementation of respective strands of the industrial policy of the Russian Federation in the regions. The research results will make it possible to implement reflexive governance of the import substitution mechanism in clusters.

5. Discussion

5.1. Academic views on the issue of reflexive governance

A situation of implicit compulsory orientation when choosing a decision by an actor was called reflexive governance by Lefebvre (1967), who also determined its process of influencing the actors which inclines them to make decisions prepared in advance by the governing party.

Military theoretician Chausov (1999) formulated the following principles of reflexive governance: goal orientation; actualization of plans when the situation is determined by the global information space; accordance of goals, mission, place, time, and methods of implementing reflexive governance; modeling or forecasting the state of the party during the execution of actions; anticipation of events (the idea of a result of a process which occurs before its actual achievement and serves as a means of feedback in constructing an action).

Practice has shown that companies using logistic tools, including reflexive governance, have gained an advantage over competitors reducing costs associated with curtailing operating expenditures in the area of resource potential (Anikin, 2014; Bowersox and Closs, 2008; Dybskaya *et al.*, 2015; Lukinsky *et al.*, 2012; Prokofieva and Sergeev, 2010; Heywood, 2002; Handfield, 2003). The specificity of logistics lies in a systematic consideration of the aggregate of all links in production process from the standpoint of a single material-production chain, which called 'logistic system' (Lambert and Burduroglu, 2002).

Environics forms such a list of goals and tasks to be considered that require knowledge of governance approaches and techniques, production technologies, economy, social problems, and environmental management. At the same time, in governance issues of environics, formulating and regulating patterns are used. It is due to this approach that environics makes it possible to use modern methods of economic orientation in planning and developing logistic strategies (Khairova, S.M. 2014).

To date, various integrated supply chain optimization models have been developed: integrated supply chain structure planning and supply volume determining models, location-allocation and capacitated plan location models (Chopra and Meindl, 2010; Mula *et al.*, 2010; Shen *et al.*, 2003; Vidal and Goetschalckx, 1997). Models of integrated production planning, distribution, and transportation, lot-sizing and transportation or scheduling-routing models (Chen, 2010; Drexl and Kimms, 1997), volume planning and lot size planning, production, transportation and batching (Chen and Lee, 2008; Hall and Potts, 2005). Models of integrated inventory planning and transporting, inventory-routing problems, models of integrated tactical planning and operational scheduling, integrated planning and scheduling (Chen and Lee, 2008). An integrated scheduling and distribution model determined by the competitiveness of its economic routing environment, integrated scheduling, distribution and routing planning (Chen, 2010), including consideration of the

possibility of a process selecting flexibility for a set of given alternatives, integrated process planning and scheduling (Ozguven *et al.*, 2010) and others.

According to Porter (1993) the competitiveness of a company largely depends on basic conditions of the product-to-resource ratio and competition within the network. Considering that integration and coordination are key elements of Supply Chain Management (SCM), the current trend is development of integrated models of supply chain optimization in general rather than its local participants or management functions in an enterprise.

The work of Ramanujam and Mensch (1985) who divided innovations into basic and improving ones, Dosi (1982) who studied the formation process of technological trajectories, and Pérez (1987) who introduced the notion of technical-economic paradigm, have been essential to intensifying discussions on these issues.

To explain a firm development based on innovations, Nelson and Winter (1982) suggested that it be considered a carrier of different types of routines. In modern conditions, research programs that underestimate the importance of high business environment variability, that is, the theory of competitive strategies, the resource concept, and others, undergo a critical analysis, and more realistic dynamic approaches are being developed – the theory of a company based on knowledge, the concept of dynamic abilities, the ecosystem approach, etc. At the current stage of technical and economic development, most implementations have been developed according to foreign authors, while there is little work on adaptation of new techniques to the Russian reality, which generates an increased demand for such work.

According to Novikov and Khairov, B.G. (2015) «The study of the interaction of business and power structures often wear either a system-wide nature, or affect some aspects of the applied use in the field of marketing, logistics, entrepreneurship, which does not allow to link the theoretical and methodological concepts to the actual problems of real development of reflexive management with the stages of change of relations of government and business».

The need to establish strong organizational links in a logistics chain to improve its overall competitiveness is indicated by well-known logistics specialists Bowersox and Closs (2005), considering that cooperation leads to a reduction of risk and a significant increase in efficiency of the entire logistics process, and prevents unproductive expenses and activities overlap.

5.2. Concepts of formation of territorial clusters based on the import substitution mechanism

The ideas of Porter (1993), Weber (1929) and Marshall (1920), as well as the work of Scott (1992, 1998) and other economists are the theoretical core that allows one to

justify the consistence and regularity of the world economy clustering policy (Vasiljeva, 2013a). The complexity of studying and analyzing information on this issue lies in the diversity of opinions regarding the cluster concept itself, as the basis is taken of various characteristics of a cluster often reflecting only a narrow scope of application of clusters as integrated entities in a particular field of activity (for example, medical cluster, tourist cluster, diamond cluster, etc.).

Subsequently, the cluster initiative has been used to solve a wider range of tasks, in particular, to assess the level of regional development, as well as the state as a whole; to develop programs for regional social and economic development. Analysis of works in the field of cluster model research in the economy shows that, first, the cluster theory has been used as a basis for integrated interaction of small, medium, and large businesses.

Clustering can be both a natural form of integration of economic entities that depends only on the circumstances prevailing in the economy, stimulating creation of such associations, and artificial one. In the former case, everything depends on the desire of participants themselves to form a cluster that allows them to stimulate their development and enhance competitiveness, as well as development of the region and the country as a whole. The state, in turn, can join this structure and be its full-fledged subject. In the latter case, the state determines the areas in which effective clusters can be formed and determines their participants, that is, initiates creation of clusters.

For the entire national economy, clusters play the role of growth areas in the domestic market and a basis for international expansion (Vasiljeva, 2013b). Availability of an effective mechanism for import substitution in a cluster allows the national industry to maintain its advantage. All firms from a cluster of interconnected industries invest in specialized but related technologies, in information, infrastructure, human resources, which leads to the mass emergence of new firms. Competitiveness also spreads up the technological chain. The enterprises of the cluster make it necessary to raise the quality of semi-finished products supplied to them and, thus, force their suppliers to also increase their competitiveness.

It is important to note that a cluster provides exceptionally conducive conditions for development of specialized industries, primarily of servicing and maintaining kind based on the mechanism of import substitution. Production structure of a cluster is always more profitable than sectoral one since here in-house ties are closer in the context of import substitution. A cluster generates scale effect of production based on the presence of an innovative cluster core via one of the firms for manufacturing a certain type of product or service. The cluster production structure synthesizes a synergy effect arising based on universal product standardization.

The fundamental problem of implementing the cluster approach is that it implies completely new competencies on the part of the regional authorities. It seems that Porter cluster is the most suitable model for industrial production engineering where market competition leads to harmonization of the interests of social groups and to optimal allocation of resources. An indispensable condition for the existence of Porter cluster is the existence of competition, whereby each participant of the model has the opportunity to choose with whom and when to interact and at any time has the right to refuse a transaction. In the Russian context, this is hardly possible due to a close technological dependence of industrial enterprises, when any violation of the terms of contract will lead to a halt in the production process.

In this regard, the governmental authorities have chosen the model of Russian cluster when market competition is partially replaced by production cooperation. To improve the efficiency of the Russian cluster model, it is necessary to introduce an 'institutional environment' into it, as well as import substitution as a mediating factor.

Since the time of mercantilism, asset specificity regulation has been central to the mechanism of import substitution. Asset specificity governance presupposes the orientation of regional industrial policy to development of quality standards as the most profitable competitive strategy. Accepted quality standards should be brought in line with the international principles of technical regulation. There is a clear possibility of developing standards that limit the export of foreign counterparts and stimulate the development of industrial complex through the interrelation of quality indicators with the processes of innovation management. Quality standards should be closely related to innovation management, which will ensure sustainability of the industrial complex. Herewith, the government indirectly motivates economic entities to innovate by stimulating demand for industrial products and promoting non-commercial partnership in the conditions of import substitution.

5.3. State regulation of import substitution in territorial clusters

Import substitution is described as a complete reindustrialization of economy contributing to the creation of large innovative industries, integrating industry and science, and creating thousands of new jobs.

The Ministry of Industry and Trade of the Russian Federation in liaison with the relevant line ministries is developing sectoral plans for import substitution. It is expected that the budget for implementation of sectoral plans for import substitution of critical products in the civilian manufacturing industries will amount to 1.5 trillion rubles.

With the focus on import substitution, the government is ready to support Russian clusters by means of subsidizing industries, concessional lending, and raising import customs duties on the equipment and materials that have analogues produced in the

Russian Federation. Also establishing the priority of Russian-made equipment and materials in procurement for federal and municipal needs, rate zeroing for import customs duties for equipment and materials that have no analogues in the Russian Federation. The situation in the field of cluster import substitution requires a more in-depth analysis of the current situation and establishment of conformity of the declared and actual results of import substitution in order to achieve the targeted results.

Consideration of international and Russian practices makes it possible to propose the following prospective financial mechanisms of government stimulation and support of cluster import substitution:

- 1) support of the image of domestic producers, assistance in advertising and promotion in the market;
- 2) development of the promotion infrastructure for import-substituting goods in the domestic and foreign markets (development of a commodity distribution network);
- 3) government assistance to innovative business, scientific research and exploration (inclusion in priority areas of development, grant support for investment projects in this area, public guarantees, support of an industry through VEB and the Russian Federation Investment Fund mechanisms);
- 4) formation of industrial clusters for production localization, increasing its volume and cooperation of scientific research and business processes;
- 5) development of technology parks, industrial parks, business incubators, regional venture funds as mechanisms to support PPP modes to promote the industry development.

An important step in the development of industrial clusters was the adoption of legislative regulations permitting to not only carry out development and pilot production but also industrial of output-finished product in technology development special economic zones (SEZs). Accordingly, it is possible to obtain a synergistic effect of the cluster mode and a special economic zone.

In depressed regions of the Russian Federation, the formation and development of cluster forms of organization is impossible without participation of government bodies. State backing instruments for the formation of clusters aimed at import substitution should encompass both Russian and foreign companies, stimulate flexible forms of cooperation between large, medium, and small businesses. Business incubators, regional venture funds, industrial parks can be substantial mechanisms for supporting import substitution. There is a need to apply a modern and effective logistic tool such as reflexive governance when implementing the import substitution mechanism.

5.4. Specific nature of forming the agricultural, petrochemical, timber industrial clusters in the Omsk region based on the import substitution mechanism

Within the framework of the Strategy for social and economic development of the Omsk region until 2025, the task to form priority regional clusters has been set. The program for development of the Timber Industry Cluster of the Omsk Region until 2022 is aimed at forming cooperative ties among the cluster member organizations on the basis of effective supply chain management. Technical re-equipment of the cluster members, implementation of universal quality management system by the cluster members, certified products of the cluster members based on the Forest Stewardship Council (FSC) standards. The increase in the volume of manufactured industrial products with high added value by participants in the industrial cluster, congenial investment climate in the cluster, joint investment projects of the cluster participants aimed at creating new types of industrial products, involvement of small and medium-sized enterprises in the created value chains, production of import-substituting industry products consistent with the strategic objectives of the Russian Federation, availability of conditions for attracting young manual working specialists to the cluster.

The real potential for the formation of a fully-fledged Timber Industry Cluster in the Omsk Region is provided by its timber logging capacity, added-value processing, as well as utilization of wood leftovers (about 50% of total timber logging) to make it fuel wood, and also for the production of import-substituting products of new types. Taking into account severe restrictions on the use of mineral fuels and coal introduced in most European countries, there is a clear increase in the use of alternative energy resources. Their share in fuel production, according to the legislation of the EU countries, should be constantly increasing until 2020.

In Western Europe and North America, strict mandatory requirements for confirmation of legal timber origin sources have been introduced. Therefore, it is necessary to achieve this certification in the near future in order to keep up with other forest producers. Given the development of modern materials science and a trend towards transition to composite materials, the development of industries using technological components is not possible without a presence of modern petrochemical industry. A rapid development of the industry is associated with increased use of petrochemical products in all the sectors of regional economy.

The importance of creation and development of petrochemical clusters in the Russian Federation is enshrined in the Strategy for Development of the Chemical and Petrochemical Complex for the period until 2030. A successful implementation of the Program for Development of the Petrochemical Industrial Cluster in the long-term perspective will contribute to creation in the Omsk Region of a developed segment of medium- and large-capacity petrochemical industry with an increase in the oil refining depth, as well as a globally competitive regional engineering center (Berezinskaya, 2015).

In the Russian Federation, the demand for petrochemical products is not yet satisfied with domestic production. Low development level of native high technology and

capital-intensive processing in petrochemical and chemical industries does not allow one to use the existing raw materials and industrial potential. According to the consulting agency Nexant, the bird's-eye view of trade in the future until 2025 will develop as follows: after recovery of pre-crisis growth rates of consumption, the United States and Western Europe (with the exception of Germany) are likely to become large net importers of petrochemical products. Many Asian countries will remain a net importer of polyethylene and polypropylene for a long time yet.

Russia exports mainly low value-added level product groups – synthetic rubbers dominate the exports. A capacity shortage for the production of basic monomers, in particular ethylene, is a barrier to a further development of polymer production, the implementation of import substitution policies, and the increase in exports of products with high added value.

Creation and development of Agrobiotechnological Industrial Cluster of the Omsk region is an important regionally significant project, which determines its inclusion in the Strategy of Social and Economic Development of the Omsk Region until 2025 (Berezinskaya, 2015) as one of the key priorities for the region's development in the long term.

The basis for cluster formation is integrated structures with a complete production cycle from cultivation of agricultural products to final conversion product output. Thus, the creation of clusters in the territory of the Russian Federation envisages establishing cooperative ties between business entities and representatives of the industrial infrastructure, as well as development of sustainable supply chains to increase the benefit of manufactured products for import substitution in strategically important sectors of the country. A need arises to apply elements of reflexive governance in relation to the mechanism of import substitution in clusters.

6. Conclusion

The theoretical-methodological and scientific-practical bases of reflexive governance, formation of clusters and import substitution have been investigated; the specific nature of forming territorial clusters: agricultural, petrochemical, timber industry of the Omsk region, the reserves of their formation on the basis of import substitution mechanism have been examined.

Various effective forms and instruments (vertically integrated structures, public-private partnerships, public procurement, clusters, import substitution, etc.) that have been successfully introduced internationally are used in the domestic economy. However, the existing approaches in domestic practice do not have a positive result or are not large-scale, such as 'locomotives' of development, including the created territorial innovation clusters under the conditions of import substitution.

In addition to innovation-oriented industries, the state development strategy and programs also include raw materials and processing industries and spheres. Now, more than 200 industrial clusters are listed on the cluster register of the Ministry of Industry and Trade of Russia or are being formed; some of them are innovative technology clusters or are supported by the Cluster Development Centers. The strategy of social and economic development of the Omsk region for the period up to 2025 defines the development of priority regional clusters: timber and agroindustry, oil refining, petrochemistry, and innovative cluster based on formation of high-tech components and systems. The Strategy also considers the possibility of creating a regional transport and logistics cluster in the Omsk Region.

The import substitution should ensure innovative development, access to new foreign markets with a subsequent increase in the share of its presence. The vertically integrated structures that have met legal requirements appear more efficient, having reflected their established supply chains in the cluster. Small and medium-sized businesses can only count on creating and implementing projects on the principles of PPP with the involvement of public and municipal resources.

The research conducted on the prospects of priority clusters of the Omsk region that is, agrobiological, petrochemical clusters, timber industry, high technologies and systems, has made it possible to identify factors that hamper implementation of the respective strands of the industrial policy of the Russian Federation in the regions. The research results will make it possible to implement reflexive governance of the import substitution mechanism in clusters.

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